Each curricula receives an overall grade, as noted in the Report Card. This grade corresponds to the number if icons appearing here: 5 icons represent A+; 4 1/2 icons, A; 4 icons, A-; 3 1/2 icons, B+; 3 icons, B; and 2 1/2 icons, B-.

This indicates the grade level of this evaluation. Multilevel curricula are evaluated at all applicable grade levels and may appear elsewhere in the compendium.

Title

Publisher
Address
Phone number
Grades 4-12.

Cost

Description: descriptions are based on information from the curriculum's introduction. This description may mention units or modules not specified after the title; these units or modules may appear at other grade levels or may not relate to energy issues.

Grade level: Grade levels are described as indicated in the curriculum. Each unit is listed separately. For example, if a K-6 curriculum package has separate binders for each grade, it is listed as K, 1, 2, 3, 4, 5, 6.

These grades reflect the numeric score earned by the curriculum for each evaluation area.

REPORT CARD

Overall Grade	**A**
General Content	**A**
Presentation	**A-**
Pedagogy	**A**
Teacher Usability	**A-**
Energy Content	**A**

Discipline Emphasis

Science 5	———
History/Social Science 4	———
Health 1	——
Mathematics 1	——
Performing/Fine Arts 1	——
Language Arts 5	———
Industrial/Vocational Education 0	—
Foreign Language 0	—

Evaluators indicated the degree of emphasis placed on each discipline. Results are reflected on this scale with zero (0) indicating no emphasis and six (6) indicating major emphasis.

COMMENTS

These comments reflect the evaluator's written responses on the narrative portion of the evaluation tool and are categorized by topic. If there were no comments on a particular topic, that heading will not appear.

General Content

Presentation

Pedagogy

Teacher Usability

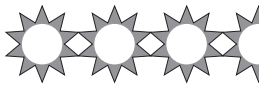
Specific Content

Additional Teacher Thoughts
Comments in this section are of a general nature and reflect evaluators' overall opinions rather than responses to specific topic areas in the evaluation tool.

The facing page contains two sample pages from the curriculum. Many lessons are more than two pages in length; therefore, sample pages may not include an entire lesson.

Teach With Energy!

National Energy Foundation
5225 Wiley Post Way, Suite 170
Salt Lake City, Utah 84116
801-539-1406
801-539-1451 (fax)
e-mail: info@nef1.org
http://www.nef1.org



Item #11TWE: $15 per copy; 160 pages, 1990. Teachers receive a 20% discount upon request. *Teach with Energy!* is available on the web for $15.

Grades K-3

An energy, electricity and science resource guide for teachers.

REPORT CARD

Overall Grade	**B+**
General Content	**B+**
Presentation	**B**
Pedagogy	**B**
Teacher Usability	**A**
Energy Content	**B+**

DISCIPLINE EMPHASIS	0 1 2 3 4 5 6
Science	———————
History/Social Science	————
Health	———
Mathematics	————
Performing/Fine Arts	—————————
Language Arts	—————————
Industrial/Vocational Education	—
Foreign Language	—

COMMENTS

General Content
Student is able to gain in-depth understanding of each theme presented. Great learning objectives. Grade level appropriate activities.

Presentation
Explains energy in layman's terms. A variety of wonderful activities from coloring books to games. A very cohesive, developmentally appropriate, thorough curriculum on energy awareness.

Pedagogy
The nature of energy requires inference (i.e. the sun, coal, etc. are things students cannot touch). This curriculum does a good job of bringing the concepts to the student's level (K-3).

Teacher Usability
Excellent teacher resource section. Thorough teacher background.

Energy Content
Excellent background information for teachers and students on coal, oil, natural gas, and how these energy resources are formed.

Energy For Electricity

Activity 12

Science	Conversions	Grades K-3	Time 60 min.

Concept

There are man-made and natural energy conversion systems.

Activity Goal

The students will observe an artificial conversion system.

What You'll Need

- Tea kettle
- Hot plate
- Pinwheel
- Cooking or scientific thermometer
- Beaker or can
- Energy For Electricity Puzzle - one for each student

What To Do

1. Explain to students that one form of energy can be changed (converted) to another. For example, the energy of coal, natural gas, or oil can be converted to heat energy. Have students share what they know about steam. Name various uses for steam such as steam heat for buildings, steam engines, or the use of steam to produce electricity. Ask students what was converted to make steam.

2. Teacher Demonstration: Using a hot plate, boil water in a tea kettle. As the steam rises place a pinwheel in the path of the steam. Explain that the heat energy was used to boil the water to create steam. The force of the steam moves the pinwheel.

Discussion:

A. How long did it take the water to boil?

B. How long did it take the wheel to begin turning?

C. How long does it continue turning?

D. What happens to the heat energy produced by the hot plate?

E. Is all the steam being used to turn the wheel?

F. Ask the student where the hot plate gets its energy.

3. Tell students how heat is used to generate electricity: Coal, oil, or natural gas can be burned to produce heat energy. The heat energy is then used to turn water into steam. The steam is then used to turn a turbine (a pinwheel-like machine), which spins a generator (made of magnets and coils of wire). The generator produces electricity.

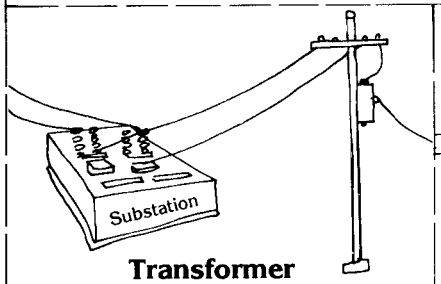
Evaluation Idea

Give students the "Energy For Electricity Puzzle." Have students cut along the dotted lines and put the pieces in order showing how a steam power plant works. The students can also color the pictures.

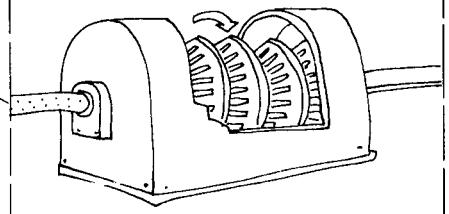
Energy For Electricity Puzzle

Name _____

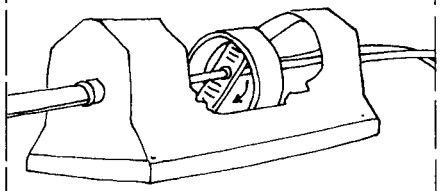
Date _____



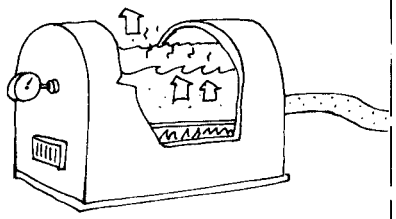
Transformer



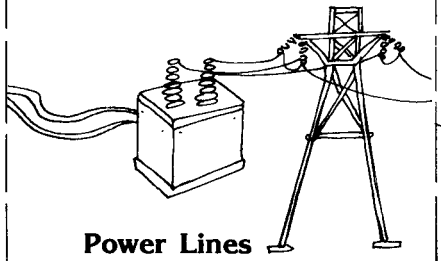
Turbine



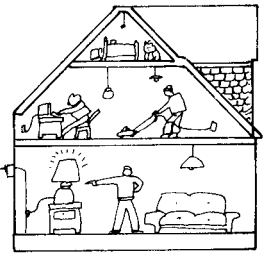
Generator



Boiler



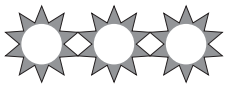
Power Lines



Consumer

The Energy Sourcebook——Elementary Unit

TVA Environmental Research Center
P.O. Box 1010, CTR 2C
Muscle Shoals, AL 35662-1010
205-386-2714
205-386-2126 (fax)



$35 each; 1992.

Grades K-3

The “Sourcebook” is intended to aid elementary teachers in teaching basic science and real-life applications of scientific principles in energy studies.

REPORT CARD

Overall Grade	**B**
General Content	**B+**
Presentation	**B-**
Pedagogy	**B-**
Teacher Usability	**B+**
Energy Content	**B-**

DISCIPLINE EMPHASIS	0 1 2 3 4 5 6
Science	
History/Social Science	
Health	
Mathematics	
Performing/Fine Arts	
Language Arts	
Industrial/Vocational Education	
Foreign Language	

COMMENTS

General Content
Thorough, comprehensive. May be more appropriate for intermediate grades. Covers choices and consequences. Could easily stand alone as a physical science unit.

Presentation
Binder sections effectively organized. Written as an elementary guide, but doesn’t designate upper/primary levels.

Pedagogy
Some activities are more worksheet-oriented than project or activity-oriented. Pedagogy is limited to lecture/dialogue and demonstrate/do.

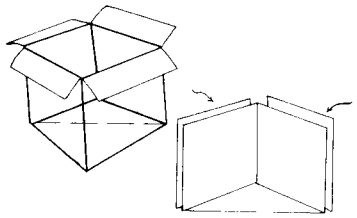
Teacher Usability
Good teacher background information for all lessons. Some materials lists are quite extensive. Resources listed at the end of each lesson.

Energy Content
Good variety of lessons on energy and conservation.

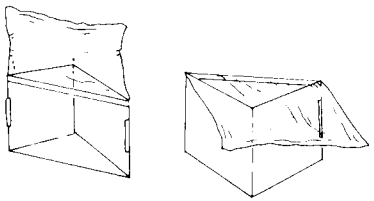
Student

HOW TO MAKE A SOLAR WATER HEATER MODEL

1. **Cut a cardboard box in half diagonally.**
   Cut the box in half along the diagonal as shown, leaving a triangularly shaped top and bottom. Then cut off the top triangle. The left-over piece has two sides that can be cut out to fit flat onto the sides of the remaining box. Then tape them to the sides of the half-box. These side pieces will add some thickness to the walls and help keep heat inside. Glue aluminum foil to the inside of the box (sides and bottom) with rubber cement (be sure to read the directions on the label).

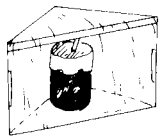


2. **Glazing the box.**
   Tape a small stick of wood (a dowel) across the top corners of the heater box as a brace. Use silver duct tape. Tape clear plastic wrap to the bottom and sides of the box as shown. Make sure it is long enough to have some left over to fold over the top. The fold-over flap can be used as a door to get into the box. You can tape heavy weights to the corners for holding it shut or you can tape the corners down.



3. **Prepare the water can.**
   Use any can that is one quart in size and has no leaks. Spray paint it with flat black paint.

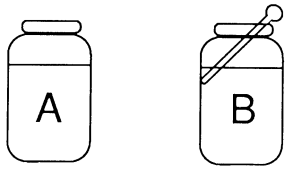
4. **Set up the water heater.**
   Open the top of the heater box. Fill the water can, cover the top of it with clear plastic wrap and put a rubber band around the top of the can to seal it. Place the filled can on the bottom of the heater box and close the top flap. Be sure it is well-sealed. Face the front of the box to the south and wait for it to heat up. You can test the temperature of the water by sticking a thermometer into it. You can also experiment with different colors or different kinds of cans and jars.



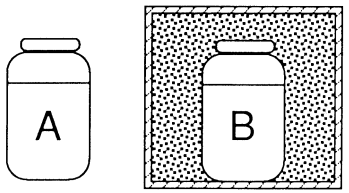
Student

INSULATION REALLY WORKS

Fill two quart jars with hot tap water and put a thermometer in each jar to measure the temperature of the water.



Record the starting temperature on the chart below. Next, place one of the jars in a cardboard box. Cover it and surround it with shredded newspapers. The other jar remains as is.

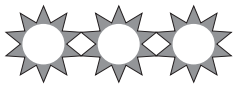


After one of the jars is "insulated," read and record the temperature of each jar every 10 minutes. After 30 minutes have passed, compare the results.

	Jar A	Jar B
Starting temperature		
After 10 minutes		
After 20 minutes		
After 30 minutes		

Let's Get Energized!

California Energy Commission
Education Office
1516 Ninth St., MS-31
Sacramento, California 95814
916-654-4989
916-654-4420 (fax)
http://www.energy.ca.gov



$1.50 per copy; 136 pages.

Grades K-6. Evaluation based on review of maerials for grades K-3.

A collection of energy education and awareness activities designed for after-school enrichment/childcare programs.

REPORT CARD

Overall Grade	**B**
General Content	**B**
Presentation	**B**
Pedagogy	**B**
Teacher Usability	**B+**
Energy Content	**C+**

DISCIPLINE EMPHASIS	0 1 2 3 4 5 6
Science	
History/Social Science	
Health	
Mathematics	
Performing/Fine Arts	
Language Arts	
Industrial/Vocational Education	—
Foreign Language	—

COMMENTS

General Content
Excellent integrated lessons using a variety of instructional strategies. Interesting, grade level appropriate lessons.

Presentation
Designed as brief, fun, inclusive lessons. Few activities for Kindergarten; first grade would need a lot of revision to be age appropriate.

Pedagogy
Lacks some type of assessment plan. Uses a lot of different educational strategies. Many lessons use discovery-based learning.

Teacher Usability
Activities are designed for a multi-age, after-school program, so to use at a particular grade, the teacher needs to adapt to the specific grade. Meant as enrichment, it would not hold it's own in a classroom.

Energy Content
Great energy saver and conservation activities for latchkey or after school programs. Limited information on alternate forms of energy.

Additional Evaluator Thoughts
Does a good job for its intended audience.

Making A Solar Hot Dog Cooker

Objective: Students will make a working model solar cooker to learn that hot solar energy can be used for heating.

Preparation:
1) Gather necessary materials noted below.
2) Practice step 2 of the procedure and be familiar with how to make a parabolic curve. It is important to be as exact as possible on the curves.
3) Make a solar cooker to show students a completed model.

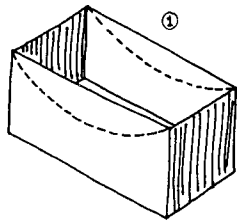
NOTE: This activity requires a fair amount of precision in measurement. If you plan to use these for making a snack be sure you have tried the building process first so that you will be able to help students build their's successfully. **This activity requires a warm (75 + degrees) clear day.**

Materials: Day 1
shoe box or similar long, narrow box made of cardboard
aluminum foil
poster board
wire (coat hangers or bailing wire work well)
glue
tape
scissors or utility knife

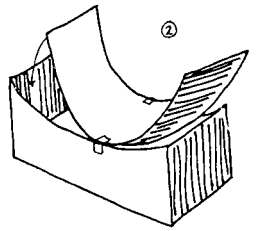
Materials: Day 2
Hot dogs
Other materials needed for snack

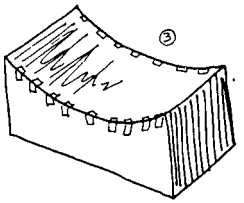
Time Frame: This is a 2 day activity. Allow 30 minutes the first day and 30+ minutes the second day depending on temperature and weather conditions.
Suggested Audience: grades 1 to 6

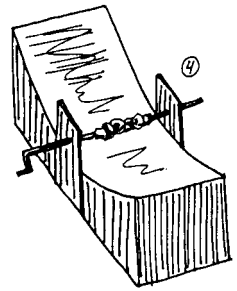
Procedure: Day 1
1) Group students into pairs (a younger student with an older partner)
2) Using a long (the longer the better), narrow box, or box made of cardboard pieces, cut a curve as shown in figure "1". It is important that the curve is symmetrical (*To make a symmetrical curve follow these steps: a) measure from end to end to find the mid-point "1a" then measure down 3 inches from the top lip of the box "2b". This is the bottom point of your curve. From this point measure in each direction and split the distance into



half again "3c". Measure 2 inches down and mark this point "4d". From this point to the end measure half way again "5e", and then down 1 inch "6f". Then with a sweeping curve connect these points to the top corners of the box.)
3) After tracing the curve with a pencil, cut it out on both sides with a utility knife or scissors. Stress the importance of being precise.
4) Measure and cut a piece of poster board that will fit flush against the opening of the box. Attach this with tape, beginning at the center and working toward the edges. (figure 2)
5) Cover the curve with glue and apply the foil, shiny side out. Try not to wrinkle or fold the foil; you want it to be as smooth as possible. (figure 3)
6) Use 2 scraps of cardboard, one taped to each side, as supports. (figure 4) Using the sun or a projector light, test the focal point of the cooker. There should be a bright spot on the supports where the light is concentrated. Mark this spot and punch a hole for the skewer. For skewers, use a piece of wire or a section of a coat hanger without a sharp point.





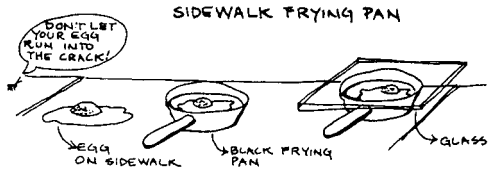


Preparation: Day 2 (Must be warm - 75 degress or more, and clear.)
1) Set up solar cookers in an area that receives full sun.
2) Cut the hot dogs in half and put on the skewer of the solar cooker
3) Remind students that their shadows will stop the cooker from working.
4) Rotate the hot dog on the skewer every few minutes to get it cooked all the way through.
5) Eat and enjoy.

BONUS IDEA FOR HOT WEATHER:

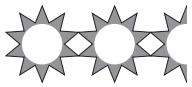
Sidewalk frying pan

Adapted from: Get Your Hands on Energy



Think Earth!

The Energy Source Education Council
Education Development Specialists
5505 E. Carson Street, Suite 250
Lakewood, CA 90713-3096
562-420-6814
562-420-1485 (fax)



$40 per unit for Preschool, Kindergarten, Grade 1, Grade 2, Grade 3.
(Each unit includes Think Earth Video, teacher's guide, posters, story/resource cards, and blackline masters.) K-1, 1991; pre-K, 1995.

Grades PreK-1

Grade level specific, five-lesson units focusing on conserving natural resources and reducing waste and pollution.

REPORT CARD

Overall Grade	**B-**
General Content	**B+**
Presentation	**B+**
Pedagogy	**B-**
Teacher Usability	**B+**
Energy Content	**C+**

DISCIPLINE EMPHASIS

	0 1 2 3 4 5 6
Science	———————
History/Social Science	————————
Health	———
Mathematics	—
Performing/Fine Arts	————
Language Arts	—————————
Industrial/Vocational Education	—
Foreign Language	—

COMMENTS

General Content
Simple units that build on each other from pre-K through 6th grade. Many language arts activities.

Presentation
Developmentally on target. Good video and activity cards. Aesthetically appealing to young students and also teachers.

Pedagogy
Assessment could be improved. Good activities.

Teacher Usability
Extensive resource guide which includes addresses and phone numbers plus a nice environmental literature list. Stories and home activities are available in Spanish. Material would be friendly for new teachers (or substitutes) to use.

Energy Content
Mini units in conserving natural resources, reducing waste, and minimizing pollution.

LESSON 3: Recognizing Products From Natural Resources

Objectives:
- Unit Outcome #1—Students will understand the following environmental concepts:
  - b. The natural environment provides valuable resources that our families use to live.
  - c. Everything comes from the environment: we build houses and make paper from trees; we use plants and animals for food and clothing; we drink water and use it to clean; we burn oil, natural gas, and coal for heat, transportation, and electricity.
- Unit Outcome #2—Students will:
  - a. Identify the natural resource base of given products.

Materials:
- Natural Resource Cards
- Product Cards
- Practice Exercise 1

Advance Preparation:
- Make a copy of Practice Exercise 1 for each student (or make an overhead transparency and work through the exercise as a class).

Procedures:

A. Conduct group practice using the Natural Resource Cards and the Product Cards

- Hold up each of the Natural Resource Cards and have students identify each natural resource. As each resource is named, tape the card to an empty chair at the front of the room.
- Hold up each Product Card and ask individual students what the product is. As soon as a student names the product, ask the student to sit in the chair showing what natural resource that product is made from. If the student gets the natural resource correct, hand the student the product card and have him or her return to his or her seat.
- Work through all 16 Product Cards. To extend practice, you might want to bring in some actual products (e.g., cotton T-shirt, frying pan, apple, pencil) or have some pictures of other products cut out from magazines. *(**Note:** If you use any products made from plastic, explain to students that all kinds of plastic—food wrap, bags, bottles, toys, even some clothes—are made from oil.)*
- When the resource base for all products has been identified, ask all the students holding cards or products to stand by the chair with the natural resource card that their product is made from. Have any students without cards or products check to see if everyone is standing by the right natural resource.

B. Identify classroom resource bases

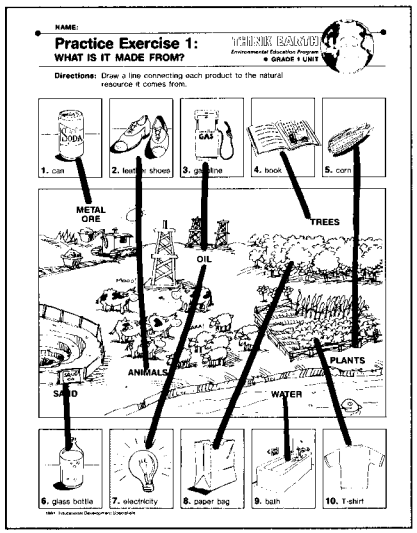
- Ask a student to point to and name any object in the classroom. Ask other students what natural resource or resources were used to make that item.
- Ask other students to point to and name other objects in the classroom and tell the natural resource base. Continue until most everything in the classroom has been named.
- Help students see that **everything** we have comes from the environment.

C. Have students complete Practice Exercise 1, *What Is It Made From?*

- Give each child a copy of Practice Exercise 1, *What Is It Made From?*
- Read the directions aloud to students. Then explain that the big picture in the center shows natural resources, and the little pictures are products. Have students identify each natural resource in the big picture.
- Work through the exercise one item at a time. For each picture, read the name of the product and ask students what natural resource it is made from. Have students draw a line connecting the product picture to the picture of the natural resource from which it is made.
- Circulate among the students, making sure that they draw the lines **correctly**.

D. Conduct additional activities

- **Cut and paste products on natural resources.** Provide groups of students with poster boards titled with each natural resource. Each group could have all the natural resources or just a few, or each group could have one different natural resource. Give each group several old magazines and have students cut out pictures of products and paste them on the board showing what natural resource they were made from. Have each group share their collages with the class.
- **Make a resources/products bulletin board.** Have students start a bulletin board of products organized by natural resource base. Students can look through old magazines for pictures.
- **Play "Who am I?" with product cards.** Have a student pick a product card and play "Who am I?" Allow the other students to ask 3 Yes/No questions to determine which product was selected, e.g., "Are you made from paper?" "Are you worn as clothing?" etc.


NAME:

Practice Exercise 1:
WHAT IS IT MADE FROM?

THINK EARTH

Directions: Draw a line connecting each product to the natural resource it comes from.

1. can
2. leather shoes
3. gasoline
4. book
5. corn

METAL ORE
OIL
TREES
ANIMALS
PLANTS
SAND
WATER

6. glass bottle
7. electricity
8. paper bag
9. bath
10. T-shirt

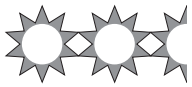
- **Play Product/Resource Game.** Have a few students play a game with the product cards. Put the cards in a stack with the pictures face up. Have each student, one at a time, name the product on top of the stack and tell what natural resource it is made from. If the student is correct, he or she keeps the card. If not, the card is returned to the bottom of the stack. The student with the most cards after all cards have been drawn wins the game.
- **Learn a song.** Teach students the following song about not littering.

(to the tune of "Frére Jacques")

Do not litter. Do not litter.
That's a rule. That's a rule.
Put all your trash in trash cans.
Put all your trash in trash cans.
Thanks a lot. Thanks a lot.

Offalot

The Energy Source Education Council
Program Distribution Office
5505 E. Carson Street, Suite 250
Lakewood, CA 90713-3096
562-420-6814
562-420-1485 (fax)



Class set $65 (includes 36pg. teacher's manual and 35 student copies); audiocassette, puppet, and other support materials available; 1990.

Kindergarten

Introduces children to the use of energy in the home and helps them develop an awareness of important conservation and safety practices.

REPORT CARD

Overall Grade	**B-**
General Content	**B**
Presentation	**B**
Pedagogy	**C+**
Teacher Usability	**B+**
Energy Content	**C+**

DISCIPLINE EMPHASIS	0 1 2 3 4 5 6
Science	———
History/Social Science	——
Health	——
Mathematics	——
Performing/Fine Arts	———
Language Arts	———
Industrial/Vocational Education	—
Foreign Language	—

COMMENTS

General Content
Delivers information through teacher. Just a two-week unit—not core curriculum.

Presentation
Developmentally on target for Kindergartners. Much could be adapted to LEP students as well. Easily understood. Use of puppet is powerful. Very creative two week unit.

Pedagogy
Uses stories and songs to teach concepts. Not activity based. Weak assessment tool.

Teacher Usability
Lots of consumables. Colorful worksheets, puppet, and picture cards would hold a young child's interest. Good teacher background. Student booklet would have to be purchased every year.

Energy Content
Only focuses on energy consumption and conservation, not where it comes from, how we get it, or why we should conserve it. Promotes awareness of conservation and safety.

LESSON 3: Practice on Energy Users

Materials:
- Energy user picture cards
- Pupil booklets, pages 3 and 4

Procedures:

A. Use energy user picture cards to review energy users

- Conduct additional practice on identifying energy users with energy user picture cards. You can follow the same procedures as in Lesson 2, Procedure B, or you can use one of the procedures suggested below:

  — Display the energy user picture cards on the chalkboard or a bulletin board. Describe a function of a particular energy user, e.g., "This energy user washes our clothes." Then call on a pupil to come up and point out the card for that energy user. Repeat until all cards have been described and identified.

  — Display the energy user picture cards face down on a table or on the floor in front of the class. Choose a pupil to come up and select a card. The pupil must then name the energy user and tell what it does. As each card is selected, it is put in a separate pile. Repeat until all the cards have been selected and identified.

B. Have pupils complete Exercise 1, "Energy Users"

- Give each child a pencil or crayon and his or her pupil booklet. Tell the pupils to open their booklets to pages 4 and 5, the blue numbers. Explain that for each row, you will tell what a certain energy user does, and pupils will circle the energy user that does that job. Be sure pupils understand that it is all right if they do not know some of the answers. The exercise will help them learn.
- Work through the exercise, one item (row) at a time. For each item, read the instructions and give the pupils time to identify and circle the energy user being described. Then call on a pupil to name the correct energy user. Any pupil with an incorrect answer should erase the answer or put an "X" through it and then circle the correct answer.

Exercise 1 - Instructions and Answer Key

1.
Put your finger on row 1--the star row. Draw a circle around the energy user that mixes our food.

2.
Put your finger on row 2--the cat row. Draw a circle around the energy user that washes our clothes.

3.
Put your finger on row 3--the fish row. Draw a circle around the energy user that cooks our food.

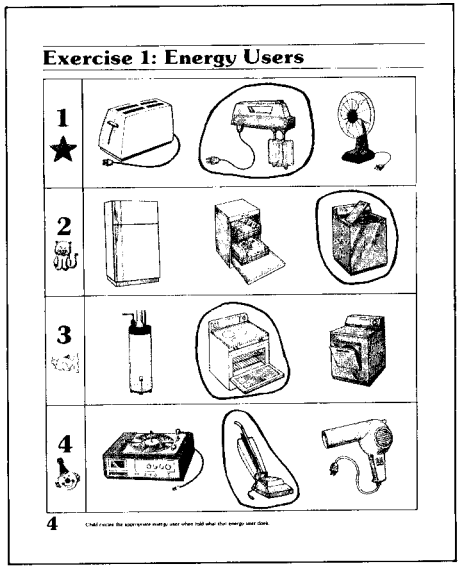
4.
Put your finger on row 4--the clown row. Draw a circle around the energy user that cleans our rugs.

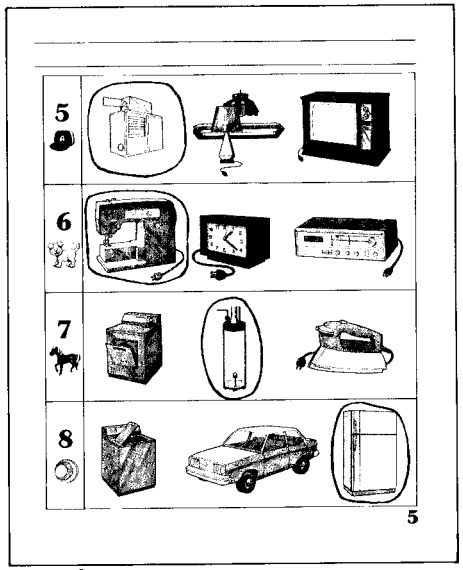
5.
Turn your paper over. Put your finger on row 5--the hat row. Draw a circle around the energy user that heats our homes.

6.
Put your finger on row 6--the dog row. Draw a circle around the energy user that sews our clothes.

7.
Put your finger on row 7--the horse row. Draw a circle around the energy user that heats our water.

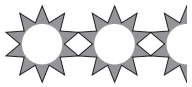
8.
Put your finger on row 8--the ball row. Draw a circle around the energy user that keeps our food cold.





Living Lightly in the City Volume I

Schlitz Audubon Center
1111 East Brown Deer Road
Milwaukee, WI 53217
414-352-2880
414-352-6091 (fax)



$24.00 per volume (plus shipping and handling); 178 pages, 1990.

Grades K-3

Activities designed to increase an awareness about communities; sources of water, food, energy and resources students consume daily.

REPORT CARD

Overall Grade	**B-**
General Content	**B**
Presentation	**B-**
Pedagogy	**C+**
Teacher Usability	**B**
Energy Content	**C**

DISCIPLINE EMPHASIS

	0 1 2 3 4 5 6
Science	———————
History/Social Science	———————
Health	———
Mathematics	———————
Performing/Fine Arts	———————
Language Arts	———————
Industrial/Vocational Education	———
Foreign Language	—

COMMENTS

General Content
Varied activities which may be adapted to urban situations. Well-presented lessons with clear objectives. Thin coverage of subject matter.

Presentation
Very developmentally appropriate; deals with materials at childrens' level. Expands beyond energy awareness. Directions for lessons not concise.

Pedagogy
Open-ended questions. Needs more hands-on activities. Needs updated pedagogy.

Teacher Usability
These activities will infuse environmental concepts into an existing curriculum. Limited teacher and student background. Great teacher resources at the end of each chapter/theme. Few materials are needed; however, a lot of photocopying would need to be done.

Additional Evaluator Thoughts
Explicitly states that the K-3 guide has an "emphasis on enjoyment and development of a positive image of self and surroundings."

ENERGY ALL AROUND ME K-1

OBJECTIVE: Students will draw pictures of objects they observed being moved, lighted, or heated by energy.

MATERIALS: Energy in My House Take Me Home sheet provided; paper and crayons needed.

TIME: Two 40-minute sessions

Session 1: Take your class on a sensory energy hunt around your school. Review the senses and begin in the school building. Do children feel energy being used (heating or cooling)? Do they smell energy (food cooking in the cafeteria)? Do they hear energy being used (typewriters, people moving, bells ringing)? How many different ways do they see energy being used? Bring along a notebook and record children's observations.

Session 2: Then explore the outdoor environment with your students. Feel the sunshine and the wind and encourage children to tune in to the smells, sounds, and sights around them to observe energy in action. Count the number of things they see moving and distinguish energy in motion from objects being heated or lighted.

When you return to the classroom, review children's observations. Classify their observations according to whether things were being moved, heated or lighted. Have each child draw a picture of some of the energy in action they observed on their sensory energy hunt. Distribute the Take Me Home sheets to your students and encourage them to go on an energy hunt at home as well.

HEATING, LIGHTING & MOVING! 2-3

OBJECTIVE: Students will: 1) Observe energy being used and write sentences using action words to describe energy heating, lighting, and moving things; 2) Use graphing skills to determine how energy is used in their homes and in the outdoor environment around the school.

MATERIALS: Student Energy Hunt and Energy in My House Take Me Home sheets provided.

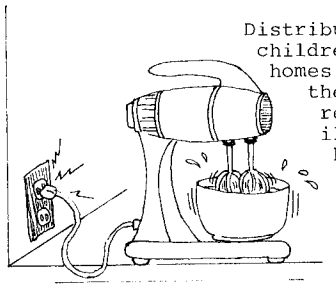
TIME: 45 minutes

Copy the Energy Hunt activity sheets and distribute one to each child. Save the Take Me Home sheet for distribution at the end of the day.

Review the definition of energy as the power to do work. Ask your students to brainstorm a list of some objects that use energy. Write their responses on the board. Then ask them to think of a way to categorize their responses. Help them to see that energy heats, lights, and moves objects. Place an H, L, or M next to each item to indicate if it is heated, lighted, or moved by energy.

Divide the students into energy-seeking teams. Then take them out on the school grounds and challenge them to see which group can find the most examples of energy in action. After ten or fifteen minutes, call the groups back together and compare notes. If they had limited success on their first trial, give them some hints for using all of their senses. They might add to their list by noticing the sun heating the earth and providing light for plants to grow. Encourage them to feel the wind and observe it moving things around them. Ask if they can smell energy being used. Can they smell food cooking or fuels burning? Look toward the school and other buildings in the area; can they see lights being used?

When you return to the classroom, tally their results. Make a bar graph to show the number of things children observed being heated, lighted, and moved. Have children write their energy action sentences and share them with their classmates.



Distribute the Take Me Home sheets and ask children to go on an energy hunt in their homes. Request that they return their sheets the following day. Then tally their results and make a class bar graph to illustrate the way energy is used in their homes. Compare this graph to the results of the outdoor hunt. Notice the differences and promote a class discussion.

Conserve and Renew

California Energy Commission
Education Information
1516 Ninth Street, MS 29
Sacramento, Ca 95814
916-654-4989
916-654-4420 (fax)
http://www.energy.ca.gov/education

$1.50 per copy; 157 pages, 1990.

Grades 4-6

A collection of energy activities written and organized for use either as a unit on energy or as individual activities to complement existing curricula.

REPORT CARD

Overall Grade	**A-**
General Content	**A-**
Presentation	**A-**
Pedagogy	**A-**
Teacher Usability	**A-**
Energy Content	**A-**

DISCIPLINE EMPHASIS

	0 1 2 3 4 5 6
Science	———————
History/Social Science	————————
Health	———————
Mathematics	————————
Performing/Fine Arts	———————
Language Arts	————————
Industrial/Vocational Education	————
Foreign Language	—

COMMENTS

General Content
Curriculum is integrated across all disciplines. Lots of interdisciplinary activities on a wide range of energy issues.

Presentation
Provides a section on ethics. Material is clearly written with the objectives defined.

Pedagogy
The materials encourage problem solving and critical thinking. Needs more hands-on activities that are experiment based rather than game based or listings of energy uses.

Teacher Usability
The materials can be used as a unit or as individual activities to enhance existing curricula. There is little or no background for the teacher and the phrase “it gets tricky” often appears.

Energy Content
Many good lessons which identify renewable/non renewable energy sources. This is an excellent curriculum on energy conservation.